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## CLAIM AMENDMENTS

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### Claim Amendment Summary

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#### **Claims pending**

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- At time of the Action: Claims 1, 3-9, 11-41.
- After this Response: Claims 1, 4-9, 12-24, 26-28, 35-41.

7 **Canceled or Withdrawn claims:** 2, 3, 10, 11, 25, 29-34.

8 **Amended claims:** 1, 4-6, 9, 12, 14, 18-22, 24, 26-28, 35, 38, and 39.

9 **New claims:** none.

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#### Claims:

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13       **1. (CURRENTLY AMENDED)** A method for concealing data within a  
14 digital signal, the method comprising:

15           receiving a first data pattern of discrete values and a second data pattern of  
16 discrete values;

17           imposing a discrete value of the second data pattern over one or more  
18 values of the first data pattern, wherein the imposing is carried out by performing  
19 a Boolean operation with a discrete value of the second data pattern and multiple  
20 discrete values of the first data pattern;

21           encoding a third data pattern into the digital signal, wherein such third data  
22 pattern is the result of the imposing.

1           **2. (CANCELED)**

2           **3. (CANCELED)**

3           **4. (CURRENTLY AMENDED)** A method as recited in claim 1, wherein  
4           the Boolean operation is XOR imposing comprises the ~~XORing a discrete value of~~  
5           ~~the second data pattern with one or more values of the first data pattern.~~

6           **5. (CURRENTLY AMENDED)** A method as recited in claim 1, wherein  
7           a pattern of discrete values may be encoded into the digital signal in one of  
8           multiple discrete states;

9           the imposing comprises encoding ~~one or more~~ multiple values of the first  
10          data pattern into the digital signal into a state that indicates a single discrete value  
11          of the second data pattern.

12          **6. (CURRENTLY AMENDED)** A method as recited in claim 1, wherein  
13          the digital signal is selected from a group consisting of a digital audio signal, a  
14          digital video signal, a digital image signal, and a digital multimedia signal.

15          **7. (ORIGINAL)** A method as recited in claim 1, wherein the first data  
16          pattern is a watermark.

17          **8. (PREVIOUSLY PRESENTED)** A computer having a computer-  
18          readable medium as recited in claim 18.

1           **9. (CURRENTLY AMENDED)** A method for revealing a covert data  
2 pattern of discrete values from an encoded data pattern of discrete values in a  
3 digital signal, the method comprising:

4           receiving a digital signal, the signal having ~~an~~ a watermark encoded therein,  
5 the watermark being an encoded data pattern of discrete values is encoded into the  
6 signal in one of multiple discrete states, the encoded data pattern representing  
7 multiple data patterns comprising an original watermark data pattern and a covert  
8 data pattern;

9           extracting a discrete value of the covert data pattern from a plurality of  
10 values of the encoded data pattern, wherein the extracting is carried out decoding a  
11 single discrete value of the covert data pattern from the digital signal based upon a  
12 state of a multiple discrete values of the encoded data pattern.

13

14           **10. (CANCELED)**

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16           **11. (CANCELED)**

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18           **12. (CURRENTLY AMENDED)** A method as recited in claim 9, wherein  
19 the digital signal is selected from a group consisting of a digital audio signal, a  
20 digital video signal, a digital image signal, and a digital multimedia signal.

21

22           **13. (PREVIOUSLY PRESENTED)**       A computer having a computer-  
23 readable medium as recited in claim 19.

1       **14. (CURRENTLY AMENDED)** A method for encoding a watermark with  
2 a covert message into a digital audio signal, wherein binary bits of the watermark  
3 may be encoded into the signal in multiple states, the method comprising encoding  
4 multiple bits of the watermark into the digital signal into a state that indicates a  
5 single discrete value of the covert message.

6

7       **15. (ORIGINAL)** A method as recited in claim 14, wherein the multiple  
8 states are positive or negative modifications to magnitudes of one or more  
9 subbands in the frequency spectrum of a sample of the signal.

10

11      **16. (CURRENTLY AMENDED)** A method for imposing a covert message  
12 into a watermark, the method comprising:

13           generating multiple watermarks;  
14           assigning each of the multiple watermarks to each of the possible discrete  
15 values for at least a portion of the covert message;  
16           selecting a watermark that corresponds to an actual discrete value of at least  
17 a specific portion of the covert message;  
18           without encoding any portion of the covert message itself into a digital  
19 signal, encoding the selected watermark into the digital signal.

20

21      **17. (PREVIOUSLY PRESENTED)** A method as recited in claim 16,  
22 wherein

23           size of all portions of the covert message is N bits long;  
24           number of the multiple watermarks is  $2^N$ .

1       **18. (CURRENTLY AMENDED)** A computer-readable medium having  
2 computer-executable instructions that, when executed by a computer, perform a  
3 method for concealing data within a digital signal, the method comprising:

4           receiving a first data pattern of discrete values and a second data pattern of  
5 discrete values;

6           imposing a discrete value of the second data pattern over one or more  
7 values of the first data pattern, wherein the imposing is carried out by performing  
8 a Boolean operation with a discrete value of the second data pattern and multiple  
9 discrete values of the first data pattern;

10          encoding a third data pattern into the digital signal, wherein such third data  
11 pattern is the result of the imposing.

1       **19. (CURRENTLY AMENDED)** A computer-readable medium having  
2 computer-executable instructions that, when executed by a computer, perform a  
3 method for revealing a covert data pattern of discrete values from an encoded data  
4 pattern of discrete values in a digital signal, the method comprising:

5             receiving a digital signal, the signal having ~~an~~ a watermark encoded therein,  
6 the watermark being an encoded data pattern of discrete values is encoded into the  
7 signal in one of multiple discrete states, the encoded data pattern representing  
8 multiple data patterns comprising an original watermark data pattern and a covert  
9 data pattern;

10          extracting a discrete value of the covert data pattern from a plurality of  
11 values of the encoded data pattern, wherein the extracting is carried out decoding a  
12 single discrete value of the covert data pattern from the digital signal based upon a  
13 state of a multiple discrete values of the encoded data pattern.

1           **20. (CURRENTLY AMENDED)** An apparatus comprising:

2           a processor;

3           a covert-channel-encoder executable on the processor to:

4                 receive a first data pattern of discrete values and a second data  
5                 pattern of discrete values;

6                 impose a discrete value of the second data pattern over one or more  
7                 values of the first data pattern, wherein the imposition is carried out by  
8                 performing a Boolean operation with a discrete value of the second data  
9                 pattern and multiple discrete values of the first data pattern;

10                encode a third data pattern into a digital signal, which third data  
11                pattern is based upon the result of the imposing.

1       **21. (CURRENTLY AMENDED)** An apparatus comprising:

2           a processor;

3           a covert-channel-decoder executable on the processor to:

4              receive a digital signal, the signal having ~~an~~ a watermark encoded  
5              therein, the watermark being an encoded data pattern of discrete values is  
6              encoded into the signal in one of multiple discrete states, the encoded data  
7              pattern representing multiple data patterns comprising an original  
8              watermark data pattern and a covert data pattern;

9              extract a discrete value of the covert data pattern from a plurality of  
10             values of the encoded data pattern, wherein the extraction is carried out  
11             decoding a single discrete value of the covert data pattern from the digital  
12             signal based upon a state of a multiple discrete values of the encoded data  
13             pattern.

15       **22. (CURRENTLY AMENDED)** A data encoding system for concealing

16           data within a digital signal, the system comprising:

17           a receiver for receiving a first data pattern of discrete values and a second  
18           data pattern of discrete values;

19           an imposer coupled to such receiver, the imposer for imposing a discrete  
20           value of the second data pattern over one or more values of the first data pattern,  
21           wherein the imposer carries out its imposing by performing a Boolean operation  
22           with a discrete value of the second data pattern and multiple discrete values of the  
23           first data pattern;

24           an encoder coupled to the receiver and the imposer, the encoder for  
25           inserting within the digital signal one or more values of a third data pattern which

1 are results of the imposer's imposing a discrete value of the second data pattern  
2 over one or more values of the first data pattern.  
3

4       **23. (PREVIOUSLY PRESENTED)**       An operating system embodied on  
5 a computer-readable medium having at least one program module comprising an  
6 encoding system as recited in claim 22.

7  
8       **24. (PREVIOUSLY PRESENTED)**       A marked signal embodied on a  
9 computer-readable medium, the marked signal having an encoded data channel  
10 therein, wherein such encoded data channel has a covert data channel imposed  
11 therein, the marked signal generated in accordance with the following acts:

12           receiving an original watermark data pattern of discrete values and a covert  
13 data pattern of discrete values;

14           imposing a discrete value of the covert data pattern over one or more values  
15 of the original watermark data pattern, wherein the imposing carries out its  
16 imposing by performing a Boolean operation with a discrete value of the covert  
17 data pattern and multiple discrete values of the watermark data pattern;

18           encoding results of the imposing within an unmarked signal to produce the  
19 marked signal.

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21       **25. (CANCELED)**  
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24  
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1           **26. (CURRENTLY AMENDED)** A marked signal as recited in claim 24,  
2 wherein the Boolean operation is XOR ~~imposing comprises the XORing a discrete~~  
3 ~~value of the second data pattern with one or more values of the first data pattern.~~

4  
5           **27. (CURRENTLY AMENDED)** A marked signal as recited in claim 24,  
6 wherein

7                 a pattern of discrete values may be encoded into the signal in one of  
8 multiple discrete states;

9                 the ~~imposing comprises encoding one or more~~ multiple values of the ~~first~~  
10 watermark data pattern into the digital signal into a state that indicates a single  
11 discrete value of the ~~second~~ covert data pattern.

12  
13           **28. (CURRENTLY AMENDED)** A marked signal as recited in claim 24,  
14 wherein the marked signal is selected from a group consisting of a digital audio  
15 signal, a digital video signal, a digital image signal, and a digital multimedia  
16 signal.

17  
18           **29. (CANCELED)**

19  
20           **30. (CANCELED)**

21  
22           **31. (CANCELED)**

23  
24           **32. (CANCELED)**

1           **33. (CANCELED)**

2           **34. (CANCELED)**

3           **35. (CURRENTLY AMENDED)**           A method for concealing data  
4           within a digital signal, the method comprising:

5           receiving a first data pattern of discrete values and a second data pattern of  
6           discrete values;

7           imposing a single discrete value of the second data pattern on a plurality of  
8           values of the first data pattern, wherein the imposing encodes a third data pattern  
9           into the digital signal.

10           **36. (PREVIOUSLY ADDED)**           A method as recited in claim 35,  
11           wherein the imposing comprises performing a Boolean operation with a discrete  
12           value of the second data pattern and a plurality of values of the first data pattern.

13           **37. (PREVIOUSLY ADDED)**           A method as recited in claim 35,  
14           wherein the imposing comprises XORing a discrete value of the second data  
15           pattern with a plurality of values of the first data pattern.

1           **38. (CURRENTLY AMENDED)**

A method as recited in claim 35,

2 wherein

3           a pattern of discrete values may be encoded into the digital signal in one of  
4 multiple discrete states;

5           the imposing comprises encoding a plurality of values of the first data  
6 pattern into the digital signal into a state that indicates a single discrete value of  
7 the second data pattern.

8

9           **39. (CURRENTLY AMENDED)**

A method as recited in claim 35,

10          wherein the digital signal is selected from a group consisting of a digital audio  
11 signal, a digital video signal, a digital image signal, and a digital multimedia  
12 signal.

13

14          **40. (PREVIOUSLY ADDED)**

A method as recited in claim 35,

15 wherein the first data pattern is a watermark.

16

17          **41. (PREVIOUSLY ADDED)**

A computer-readable medium

18 having computer-executable instructions that, when executed by a computer,  
19 performs the method as recited in claim 35.